

What is claimed is:

1 1. A method for enlarging communication range of bluetooth data applicable to a  
2 communication system composed of at least a client electronic machine, a  
3 bluetooth server, and a bluetooth agent, the method comprising the following  
4 procedures:

5 •Executing a searching procedure for the bluetooth agent to search the  
6 bluetooth server periodically for related service information and basing thereon  
7 to update the service information of the bluetooth server previously stored in the  
8 bluetooth agent that enables the client electronic machine to search for the  
9 bluetooth service information;

10 •Executing a searching procedure for the client electronic machine to  
11 search the bluetooth agent for bluetooth service, wherein the bluetooth agent is  
12 to compare and transmit the new bluetooth service information to the client  
13 electronic machine immediately upon receipt of a search instruction from the  
14 client end;

15 •Executing a linking procedure for the bluetooth agent to request the  
16 bluetooth server for linking after receipt of a link request from the client end,  
17 and transfer the response signal of the bluetooth server to the client electronic  
18 machine;

19 •Executing a data transmission procedure, wherein either an upload or a  
20 download bluetooth data pack is transmitted to the bluetooth server or the client  
21 electronic machine via the bluetooth agent; and

22 •Executing an unlink procedure, wherein either the client electronic  
23 machine or the bluetooth server may request the bluetooth agent to unlink, and  
24 the latter will do as wished upon receipt of the request.

1 2. The method according to claim 1, wherein the bluetooth agent proceeds the  
2 linking and the data transmission procedure in a bluetooth communication  
3 protocol RFCOMM layer and performs data transmission or data transference  
4 through a plurality of protocol logic channels, wherein the logic channel is  
5 defined as a Data Link Connection Identifier (DLCI) channel.

1 3. The method according to claim 1, wherein the bluetooth agent comprises at least  
2 a Bluetooth Generic Access Profile, a Bluetooth Serial Port Profile, a Bluetooth  
3 Service Discovery Application Profile, and a Bluetooth Agent Application  
4 Profile.

1 4. The method according to claim 3, wherein the Bluetooth Agent Application  
2 Profile can serve as an "Agent Proxy" for data transmission and updating by  
3 taking advantage of the Bluetooth Generic Access Profile, the Bluetooth Serial  
4 Port Profile, and the Bluetooth Service Discovery Application Profile, and the  
5 Bluetooth Agent Application Profile further comprises:

6 a User Interface Block (UIB) for operation on a user interface and further  
7 control of execution of the rest blocks; and

8 an Agent Control Block (ACB) being the kernel of the Bluetooth Agent  
9 Application Profile in charge of communicating the UIB with a Close  
10 Connection Block (CCB), a Transfer Data Block (TDB), a Create DLCI  
11 Connection Block (CDCB), and a Server Service Discovery Block (SSDB) and  
12 controlling the latter blocks, wherein the Close Connection Block (CCB) is  
13 planned to interrupt a link operation or close the related Data Link Connection  
14 Identifier (DLCI); the Transfer Data Block (TDB) is activated to transmit a  
15 bluetooth data pack according to a switch channel table in the bluetooth agent;  
16 the Create DLCI Connection Block (CDCB) is arranged to perform linking with

17 a correspondent bluetooth server in response to a request from a client end; the  
18 Server Service Discovery Block (SSDB) is planned for periodically searching  
19 service information of bluetooth server in order to update the out-of-date service  
20 information of the bluetooth agent.

1 5. The method according to claim 4, wherein a bluetooth data pack is transmitted  
2 basing an Agent Switch Table stored in the bluetooth agent and the Agent  
3 Switch Table comprises at least:

4 an Agent Server Channel (Agent\_SC) record, which is a registry record of  
5 server channels in the bluetooth agent, namely, the server channels which the  
6 bluetooth agent can provide to the client end and the bluetooth server for  
7 linking;

8 a Server Server Channel (Server\_SC) record, which shows the server  
9 channels of the bluetooth servers connected with the Agent\_SC;

10 a Register Flag (Register\_Flag) for tagging a registered Agent-SC provided  
11 to the client end for inquiry with a bluetooth service database in the bluetooth  
12 agent to confirm registry of the Agent\_SC if the Register\_Flag is true, or it is  
13 false otherwise;

14 an Action record showing that whether the client end and the bluetooth  
15 server have converted data in the bluetooth agent, and it is positive if the value  
16 recorded is true, or false otherwise;

17 a Server Bluetooth Device Address (Server\_BD\_ADDR) record showing  
18 the address of a bluetooth server connecting with the Agent\_SC;

19 a Client Bluetooth Device Address (Client\_BD\_ADDR) record showing the  
20 address of a client end connecting with the Agent\_SC;

21 a Client DLCI (Client\_DLCI) record showing a DLCI (Data Link

22 Connection Identifier) channel through which the client end is connected with  
23 the bluetooth agent;

24 a Server DLCI (Server\_DLCI) record showing a DLCI channel through  
25 which the bluetooth server is connected with the bluetooth agent;

26 a Client DLCI Flag (Client\_DLCI\_Flag) for discriminating whether a DLCI  
27 channel is built between a client end and the bluetooth agent, and it is positive if  
28 the flag is true, or false otherwise;

29 a Server DLCI Flag (Server\_DLCI\_Flag) expressing whether a DLCI  
30 channel is built between the bluetooth server and the bluetooth agent, and it is  
31 positive if the flag is true, or false otherwise;

32 a Client Input Data Entry (Client\_Entry) record showing the entry of a  
33 bluetooth data pack transmitted from the bluetooth server to a client end via the  
34 bluetooth agent; and

35 a Server Input Data entry (Server\_Entry) record showing the entry of a  
36 bluetooth data pack transmitted from a client end to the bluetooth server via the  
37 bluetooth agent.